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Circular Letters:

Bites and Stings

Part I: Dog Bite. The subject of bites, with particular reference to dog, snake and black-widow spider bites is evidently misunderstood and inadequately discussed.

The bite most apt to give rise to public hysteria is that of a rabid dog. Since there is no treatment for rabies, prevention is all that can be offered. Vaccines available are of 2 main types: (1) Semple type, made of suspension of brain tissue of rabid animals, the virus killed with phenol; (2) irradiated type, where the virus in the brain suspension is killed by ultraviolet radiation.

Following the advice of Dr. Goodpasture of Vanderbilt University and the Virus Laboratory of the Public Health Service, it is felt that all people who have had even questionable exposure to a rabid animal, including saliva on the apparently intact skin of the hands or face, should have the Pasteur treatment administered. Usually this is the 14 day treatment. Two cases of rabies with death followed the licking of small wounds on children by the family dog which later died with rabies. If the patient, most often a child, is bitten about the face and head, it is advisable to debride and cleanse the wounds and treat them as any other lacerated, potentially infected wound. It is wise to give these children immediate rabies vaccine and probably to use the 21 day treatment. If the wound is on the trunk or one of the extremities, it is best to have the dog isolated for observation and to delay specific vaccine until the dog dies or a definite diagnosis can be established. The Virus Institute of Alabama feels that any dog that survives 14 days after biting a person did not have rabies at the time the patient was bitten; hence rabies vaccine is not indicated.

The incubation period of rabies is long and irregular, varying from 2 to 3 weeks to 12 months. It should be stressed that there is no known treatment for rabies, once developed, and that the usual cost of prophylactic treatment is less than the loss of sleep from worry. Confidence of the public in vaccine therapy may be a little too great. It has been reported by the Pasteur Institute that 1 of every 293 treated with vaccine died of rabies. In deep bites, the proportion was 1 to 192 and in bites about the head 1 to 77-1/2. The author has personally administered or supervised the giving of the vaccine to approximately 200 individuals, none of whom developed rabies. However, about 50 percent had a mild to moderate reaction to the vaccine.

There are many reasons why the disadvantages of rabies vaccination should be carefully weighed. The vaccination alone carries danger. It should be given only in the following conditions: (1) a bite by a proven rabid animal; (2) a bite about the head by a suspicious animal; (3) a bite by a stray animal that cannot be observed; (4) laceration contaminated by saliva from a suspicious or stray animal.

A question regarding the severity of reactions from the vaccine arises. In the author's experience, patients have complained of reactions varying from local tissue discomfort to lumbo-dorsal myelitis. Many complained of general malaise, loss of energy, anorexias and fever for 2 or 3 weeks after completing

the course of vaccine. Two patients were semi-invalids for nearly a year with generalized aches and pains, mild arthritis and general loss of energy and efficiency. Rabies vaccine reactions within the central nervous system are of 2 types: encephalitis and myelitis. They occur 1 to about every 15,000 immunizations. The exact etiology is unknown, but prevalent theories include: (1) actual virus invasion; (2) a latent neurotropic virus is activated by the antigen antibody reaction; (3) possibly an allergic phenomenon. The onset of the myelitis is usually rather rapid, beginning with the signs of cord involvement, paralyses, anesthesias, paresthesias, loss of sphincter control and absent reflexes. The duration depends on the extent of the cord involvement, but is usually only a matter of days. Complete recovery is the usual prognosis, but permanent paralysis and even death may result. The encephalitis is more severe, both in symptoms and in prognosis; 50 percent is the accepted mortality rate. The onset is usually abrupt, with fever, vomiting, severe headaches, photophobia, irritability, delirium and convulsions. Diagnosis depends on the history of vaccine administered. There is little change in the spinal fluid, save a moderately increased pressure and the presence of a few myelocytes.

The treatment is entirely symptomatic: repeated lumbar puncture for relief of headache, 50 percent glucose intravenously, sedatives and anticonvulsants. The value of the newer antibiotics is doubtful. Huge doses of Benadryl (100 to 150 mg. every 3-4 hours) have been given, with more prompt recovery and apparently less aftereffects. Nearly all patients having paralysis of the sphincters will develop a severe cystitis and ascending pyelitis unless adequate care and bladder drainage are given. (GP, July '51, D. G. Miller, Jr.)

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The Use of Carob Flour (Arobon) in a Controlled Series of Infant Diarrhea

For the past few years the General Hospital of Fresno County, California, has been confronted with the problem of admitting on the average of 50 cases of diarrhea and dehydration in infants per month. These babies are the children of the migrant workers in the San Joaquin Valley. While the parents and older members of the family are working at their respective jobs, the younger members are left to take care of themselves and eat and manage the best they can. The season of the migrant workers is from approximately the middle of April to the middle of December. During this period the county hospitals of the Valley are flooded with cases of diarrhea in the younger age group, the majority of the patients being under 1 year of age.

Nearly all of these patients with diarrhea have negative stool cultures and it is the author's belief that the contributing factors in the etiology of this type of diarrhea are: (a) poor eating habits, (b) inadequate diet, (c) excessive

exposure to heat, culminating in dehydration and (d) poor sanitary conditions in and around the labor camps. The majority of the infants enter the hospital with the chief complaint of vomiting and diarrhea of anywhere from 2 days to 2 weeks, with as many as 15 to 20 watery stools per day. By the time the children reach the hospital they are severely dehydrated and most of them are in moderate to severe acidosis. The mode of treatment has been to give them either plasma or blood on admission, followed by electrolytes by all routes to correct their acid and base imbalance and to restore their state of hydration, and then to put them on progressive fluids by mouth as soon as they can tolerate anything orally. Most of the antidiarrheal agents have been tried at one time or another without much effect, for these children continue to pass green watery stools even after they are in a state of normal hydration and electrolyte balance, some for as long as 15 to 20 days.

After the initial report of Smith and Fischer, it was decided to compare the action of Arobon with the standard method of treatment. Because of the excellent response to this substance, it was believed that a preliminary report of 20 cases should be published to enable those physicians treating diarrhea in infants to become acquainted with the material.

The subjects in this report consisted of 40 infants between the age of 1 week and 1 year who entered the hospital with the diagnosis of diarrhea or diarrhea and dehydration. Every other one of these patients was put in the control group, and the others in the Arobon group. All patients were given 300,000 units of crystalline penicillin on admission and every 12 hours while under observation, 250 mg. of dihydrostreptomycin every 6 hours (alternating between oral and intramuscular route); each had a carbon dioxide combining power determination on admission; stool cultures for parasites, ova and bacteria were obtained from each patient on 3 successive days and the usual admitting laboratory work, such as complete blood count, urinalysis and serology was done. Fluid and electrolyte replacement was instigated immediately and the type of fluid and route of administration were determined for each patient depending on the severity of the dehydration and amount of acidosis.

On the basis of past experience, the control group was treated as follows: After a short starvation period this group was put on a progressive fluid regime, starting out with Ringer's-lactate by mouth. As the infant's tolerance to oral feeding increased, the formula was changed from the Ringer's-lactate to half strength boiled skimmed milk. This formula was kept up until the stools began to form; then the strength of the milk formula was gradually increased until the child was on the "going home formula." During the early phase of this regime the daily fluid requirements were met with a combination of oral and parenteral administration.

The Arobon group was treated identically, except that when the starvation period was over, a 5 percent solution of Arobon was given by mouth. As much as could be tolerated by the infant was given every 4 hours and the child was offered a solution of 5 percent glucose in water between feedings. As soon as

a true formed stool was passed, the 5 percent Arobon solution was diluted half and half with the infant's "going home formula." The patient was kept on the latter formula for the next 24 hours, and then put on the "going home formula" and watched in the hospital for from 24 to 48 hours.

The type of diarrhea being treated was not bacterial in origin, as nearly all of the stool cultures were negative and the severity of the diarrhea was equally distributed among both groups. The average number of hours for the first formed stools to be obtained in the control group was 174.3 as compared to 47.95 in the Arobon group; the average number of hospital days required for treatment of the control group was 14.15, as compared to 7.85 for the Arobon group; the average number of hours before cure in the control group was 339.6, while in the Arobon group it was 120.05.

The patients in this series were followed in out-patient clinic at weekly intervals for a period of 2 weeks, and there were no relapses in either group. Two of the patients in the Arobon group complained of "constipation" for several days following discharge from the hospital. This is believed to be due to not starting the dilution of the 5 percent Arobon with the "going home formula" quite soon enough.

Arobon was used on a considerable number of diarrheal patients who were less severely ill and were treated in the out-patient department. All those treated in this manner began having formed stools and their diarrhea cleared in a maximum of 48 hours. The regime with respect to Arobon was identical for both in- and out-patients. It is noted that not one of the patients refused to take the formula, but all took it wholeheartedly.

The author finds his experience with Arobon in the treatment of infant diarrheal disturbances to be encouraging. It appears to assist in controlling the diarrhea in a period of from 16 to 144 hours. No adverse side effects were elicited. (J. Pediat., July '51, T. R. Plowright)

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Cortisone in the Treatment of Sclerema Neonatorum

Sclerema neonatorum is a condition characterized by induration of the skin and subcutaneous tissue and by local and general circulatory disturbances. Recovery is extremely rare. The authors report the case of a 3 day old white boy who was treated with cortisone with apparent success.

The baby had been born prematurely, the product of approximately 32 weeks' gestation. At the time of admission he weighed 3 pounds, 12 ounces (1,700 Gm.). The skin was cold, and marked induration was present over the trunk and lower extremities; elsewhere the induration was less marked. The lower extremities were stiff and boardlike, but the upper extremities showed only a mild degree of stiffness.

The baby was placed in an incubator; oxygen supplied; penicillin administered and a formula of half skimmed milk was prescribed. Eighteen hours

after admission induration of the skin and subcutaneous tissue was even more marked. The baby had vomited most of the small amount of formula; gavage feeding was also vomited.

Twenty-four hours after admission cortisone therapy was begun: 3 doses of 10 mg. each at 8 hour intervals and 5 subsequent doses of 10 mg. each at 12 hour intervals. Twelve hours after cortisone therapy had been instituted, the skin was much softer and the extremities were less boardlike. About 36 hours after cortisone therapy had been begun, the skin and subcutaneous tissue had become normal in appearance, and they remained that way until discharge. After cortisone administration was discontinued, vomiting increased for about 24 hours. However, the course from that time on was uneventful. At time of discharge, at 1 month of age, the patient appeared to be in excellent physical condition, and there was no sign of sclerema. At 6 weeks he weighed 7 pounds 6 ounces.

Although the results obtained in this single case of sclerema in which the infant was treated with cortisone appear to be dramatic, observation in other cases will be necessary before any conclusive information is obtained.

The pathologic physiology of the disease is poorly understood, and knowledge of the part played by cortisone in fat and connective tissue metabolism is not complete. Many theories about the etiology of sclerema neonatorum have been proposed. According to Hughes and Hammond, the only constant histopathologic finding is that of thickening of the connective tissue bands in the subcutaneous areas. It is felt by them that sclerema neonatorum may be a manifestation of a severe shock during early infancy and that the hardening of the fat tissue and thickening of the collagen fibers may be the result of a peripheral circulatory disturbance. The unusual composition of infant fat, which contains less olein than does adult fat, lends itself to a hardening process, and it is also suggested that disturbances of cell metabolism as a result of peripheral circulatory failure may influence the change in collagen.

It has been recognized for some time, however, that there does exist a hormone control of fat metabolism in humans and in animals. Hypothyroidism results in hypercholesteremia, as does adrenal hypercorticalism encountered in Cushing's syndrome. It has been shown also that there is a marked loss of body fat in a rat after adrenalectomy and that this can be controlled in part by the administration of cortisone.

Since cortisone and adrenocorticotropic hormone (ACTH) have become more available for both animal and human study, there has been growing information to the effect that continued administration of these drugs results in considerable changes in fat metabolism. Ragan demonstrated a rise in the serum cholesterol, both the free and esters, in 4 of 7 patients treated with ACTH. Adlersberg demonstrated a rise in the serum phospholipids in all of 10 patients treated with cortisone in doses varying from 60 to 200 mg. daily over periods of from 6 to 24 days. This same group of patients showed a rise in the serum cholesterol and a fall in the neutral fat content of the serum. ACTH, on the other hand, tended to produce a moderate decrease in the total and esterified cholesterol and a mild elevation of the phospholipids. Adlersberg

later demonstrated a consistent rise in both the total and esterified cholesterol in 26 patients treated with cortisone and in 21 treated with ACTH. In this study the total serum cholesterol increased 20 percent in the cortisone-treated group and 33 percent in the group treated with ACTH.

Even less seems to be understood about the effect of cortisone on connective and collagen tissue. Recent studies would indicate that both cortisone and ACTH exert a depressing effect on fibroblastic and connective tissue. This is particularly illustrated by its apparent retardation of wound healing in some instances. (A.M.A. Am. J. Dis. Child., June '51, E. L. Kendig, Jr. & E. C. Toone, Jr.)

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Cation Exchange Resin in Treatment of the Nephrotic Syndrome

The use of cation exchange resin for the relief of edema was first suggested by Dock in 1946. Experiences since that time have indicated that treatment with the cation exchange resin is of real value in the control of cardiac edema and edema from other sources. However, difficulty has arisen from several sources during the administration of resin.

This paper deals with the observation of effects and toxicity of cation exchange resin in 14 patients with the nephrotic syndrome, treated during a period of 1 year. It is a compilation of several experiences which have demonstrated the striking benefits that may accrue to the nephrotic patient from resin administration and also the danger of the severe toxicity that may occur.

Methods and Materials. The cases of nephrotic syndrome in the 14 patients studied were well documented. All were considered to have the degenerative stage of glomerular nephritis, except 2 patients who were diabetic, with Kimmelstiel-Wilson syndrome. Of these patients 9 were male and 5 female; age range was 11 months to 74 years. The duration of their illness before treatment ranged from 2 weeks to 28 years. All but 2 of the patients had evidence of impaired renal function, according to the endogenous creatinine clearance. Of these, only 2 were frankly uremic, with gross elevation of the serum creatinine concentration.

The cation exchange resin used was WIN 3000, a resin which releases ammonium ions in exchange for other cations. The material was administered, in all but 1 case, in the form of golden brown 20 to 40 mesh size granules. The granules are tasteless and odorless, completely insoluble in water and cannot be suspended well, since they settle immediately after mixing.

The patients were under observation for varying times before the administration of resin. During the control periods, they all had constant or increasing weight, massive anasarca and ascites. Many determinations were made of the Addis count, quantitative protein excretion, chloride excretion, endogenous creatinine clearance, serum sodium and potassium and, in most cases, the carbon dioxide-combining power. Other usual diagnostic data were also obtained before the start of the resin treatment.

During the first period, resin administration was done in the hospital. All voided urine was obtained, with few exceptions, for each patient during the crucial days of observation. Total fluid consumption was measured,and the morning body weight was obtained daily. All the determinations mentioned were repeated at least once during the height of diuresis and at intervals thereafter.

Results. An excellent diuresis was obtained in 11 of the 14 patients. Most of the patients who responded to resin administration have been maintained virtually free of edema for periods that vary up to 1 year. For several patients the difference in their clinical condition since the initiation of resin therapy can be compared to the dramatic effects produced by cortisone administration in a patient with severe rheumatoid arthritis.

Of the 3 patients who did not have diuresis, 2 were unable to take the resin in adequate amounts. Of the latter, 1 was a child. The other was uremic, with nausea and vomiting. The remaining patient apparently took adequate doses of the resin for a sufficient time, but no diuresis occurred.

Dose and Administration. To adults the resin was administered with a spoon, followed by a drink of water. A level measuring teaspoonful weighs 4 Gm. The initial adult dose was 8 Gm. 4 times a day before each meal and at bedtime. In all patients who responded with a diuresis to the treatment, a dose of 12 Gm. 4 times a day (48 Gm. per day) or less was sufficient. If there was no loss of weight and no increase in the urinary volume after 48 hours, each individual dose was increased by 4 Gm. increments every 48 hours, until a result was obtained or until the individual dose reached 24 Gm., when the administration was abandoned. The dose for children was larger than would be anticipated from the difference in body size. In those children who responded, with a "dry body weight" of 30 to 50 pounds (13.6 to 22.7 Kg.), the effective dose was 8 Gm. 4 times a day.

As a rule, the resin is administered for 5 days, with a 2 day interval, followed by another course of administration, until the edema is nearly completely gone. Two or 3 such courses usually suffice, and the lapse in treatment prevents the occurrence of acidosis and electrolyte deficiencies. When the "dry body weight" is approached, treatment is stopped. The weight and presence of edema are followed daily until 2 or 3 pounds (0.9 or 1.3 Kg.) has been gained. At this point, a 2 or 3 day course of resin administration is usually sufficient to restore the optimum body weight. In growing children and emaciated adults it is necessary to distinguish between the reaccumulation of edema fluid and growth with an increase in body weight. In successful cases, the necessity for resin administration usually diminishes as time passes, the intervals between treatment increase and some patients have become edema free as the result of a remission.

The use of cation exchange resins for the treatment of edema represents an ingenious application of principles previously used for industrial purposes, such as water softening. Exchange resins may be made with widely varying characteristics, and it is within the range of possibility to produce resins that

are more effective for the treatment of edema, as well as other resins which may be used to eliminate substances that accumulate during the failure of excretory function.

Even in its present form, patients with uremia in whom there has been an accumulation of potassium, with symptoms from hyperkalemia, may be relieved by administration of the resin concomitantly with sodium salts by mouth. In this way the depletion of sodium can be avoided while potassium is removed.

The cation exchange resin can be prepared in various forms, so that other ions than ammonium are released in exchange for cations in the environment. It would seem reasonable to believe that a mixture of such resins could be prepared, balancing ammonium, potassium, calcium and iron forms of the resin, so that such complications as acidosis and hypokalemia could be avoided in most instances. Even in their present, incompletely developed form, the resins have a useful application in control of the nephrotic state with edema. (A.M.A. Arch. Int. Med., July '51, R. W. Lippman)

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Bacitracin in Dermatology: Its Effectiveness in Topical Therapy

Seventy-five patients with superficial pyodermas; 4 cases of secondary infections associated with varicose and traumatic ulcers; 1 ischiorectal abscess; 1 case of recurrent boils; 1 ulcer of the buttock; and 1 secondary scalp infection associated with psoriasis received topical therapy, either with an ointment consisting of 500 units of bacitracin per Gm. of petrolatum, or with wet dressings of a solution containing 500 units of bacitracin per cc. Forty-six cases in the first group completely cleared in from 3 days to 3 weeks without recurrence; 22 additional cases showed marked improvement; 5 improved and 2 did not respond to treatment. The deep ischiorectal abscess, buttock ulcer, secondary infection (scalp) and recurrent boils healed uneventfully in from 3 weeks to 3 months.

Secondary infections of old ulcers presented marked improvement in from 4 to 7 days. Secondary infections associated with acne or psoriasis either cleared completely or showed marked improvement in from 3 to 7 days. The response of hitherto strongly resistant pathogenic infections was impressive, as observed in 1 case of dermatitis continué that cleared in 7 days and in 4 cases of impetigo rodens, 2 of which had been treated ineffectively for 3 years. Both these latter cases healed without recurrence in 2 weeks.

During the course of this study, bacitracin became the dressing of choice for all minor office electrosurgery and operative procedures such as moles, skin cancers, warts and so forth.

Ninety percent of the cases of infectious eczematoid dermatitis and contact dermatitis with secondary infections were industrial cases. Many of these had been treated previously at various industrial clinics without apparent benefit. The action of bacitracin in these cases was rapid and effective.

The wide variety of infections presented by this entire group of 83 cases indicates that the therapeutic value of bacitracin is applicable in topical therapy to all pyogenic skin disorders caused by the streptodermas and staphylodermas.

Clinically, bacitracin is one of the most efficient bactericides that have been introduced into dermatologic practice. In treatment, it has materially reduced the time element (important in the industrial field). Moreover, since its allergic incidence is extremely low, the combination of a superior bactericide with a low sensitization index indicates that this compound is an excellent agent for the administration of topical therapy, probably the most effective now available. (New England J. Med., 5 July '51, E. F. Finnerty, Jr.)

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Urinary Chloride Determinations in the Estimation of the Salt Requirements in Surgical Patients

The clinician is constantly faced with the threat of salt deficiency during the management of electrolyte problems in surgical patients. This problem is complicated by the effects which might result from administering too much salt. Van Slyke and Evans, in their studies of salt depletion in human volunteers, demonstrated that urinary chloride determinations will reflect a salt deficit before the serum chlorides become reduced. These authors recommended the employment of urinary chloride values of single samples as an index to salt therapy. Such a test would have many practical advantages. It obviates the uncertainties of a 24 hour collection of urine; it helps to reduce the delay in therapy because of its rapid bedside technic, and the patient is spared the discomfort of repeated venipunctures and much of the expense of repeated laboratory procedures.

However, all clinicians agree that the correct interpretation of urinary chloride values depends on unimpaired renal function and the absence of conditions in which there is even temporary renal impairment. Extreme dehydration, shock and the immediate postoperative period are included among these conditions. Coller and Moyer and others have shown that the kidney is unable to excrete an excess of salt during the first few days after an operative procedure.

The results of the authors' studies suggest that the urinary chloride concentrations during and after oral administration of fluids and intravenous infusion of dextrose solutions in normal patients may drop below 3 Gm. per liter. Any determination obtained during one of these low periods would give a false impression of a need for salt. However, in all cases studied the chloride level of the first morning specimen of urine correctly indicated that salt therapy was not needed. Therefore, it would seem advisable to limit the use of the Fantus test to the first morning specimen.

Further investigation of patients exhibiting salt lack is needed to determine if salt will appear in the urine in sufficient quantities during saline administration, thereby indicating falsely that replacement is adequate. Several unpublished studies of the problem in the authors' clinic have given inconclusive results. Until more definite data are available, it would seem wise not to rely on the chloride content of urine during or soon after any infusion.

Nevertheless, despite these limitations there are many surgical situations in which a bedside determination of urinary chloride content should be a valuable aid to therapy. This is particularly true of some of the lengthy problems in electrolyte balance resulting from prolonged vomiting, diarrhea, drainage from the gastrointestinal or biliary tracts and burned surfaces. Because of the sensitivity of the normal kidney even to a mild salt deficit, this test should make it possible to detect salt deficiency before symptoms of reduced serum chloride levels appear.

If the limitations of the Fantus test are borne in mind, it may be used successfully as follows: In patients presenting problems of salt replacement, the first morning-voided specimen is tested for its chloride concentration. If the urine contains less than 3 Gm. per liter, a salt deficiency is assumed. A blood sample for serum chloride determination is drawn in order to ascertain more accurately the magnitude of salt deficit. Salt replacement may then be started and the total amount to be given decided after the serum chloride value is reported by the laboratory. If the serum chloride is also found to be low, vigorous salt replacement is indicated. If the serum level is unaltered, smaller amounts of saline will suffice. If it becomes necessary to estimate the chloride status of a patient after he has received fluids either orally or intravenously during that day, a serum chloride determination is the more reliable index to therapy.

In cases in which sodium and potassium imbalances are serious, the urinary chloride studies themselves will not give sufficient information. The determinations of these cations are difficult and require spectrophotometric methods to assure accuracy. However, in many of the smaller hospitals the surgeon may have to rely heavily on such simplified methods as the Fantus test. Even in large medical centers, there is a definite need for simplified methods of handling the routine salt problem. (A.M.A. Arch. Surg., July '51, W. L. Reimers & R. M. Zollinger)

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Oral Administration of Procaine with Ascorbic Acid

Procaine hydrochloride has been used intravenously for several years in the treatment of allergic conditions such as pruritus, status asthmaticus and serum sickness. The author presents a preliminary report concerning the use of procaine hydrochloride with ascorbic acid by mouth in the treatment of various disorders, many of which have an allergic background.

The pertinent data on 10 cases are presented in the accompanying table.

Data Concerning Ten Patients Treated with Orally Administered Procaine Preparations

Case No.	Sex	Age	Diagnosis	Therapy	Results and Comments	Side Effects
1	M	48	Atopic dermatitis	Procaine combination A,* 1 tablet four times daily	Pruritus stopped in three days; all lesions clear in three weeks; no recurrence	None
2	F	54	Dermatitis	Procaine combination A,* 1 tablet four times daily	Complete healing in 14 days (incidentally, patient had dramatic relief from rheumatoid arthritis pain, present for three and one-half years); no recurrence	None
3	M	34	Penicillin reaction	Procaine combination A,* 1 tablet every three hours	No relief from previously administered epinephrine; partial relief after third dose of procaine combination; complete healing in 48 hours; no recurrence	None
4	F	4	Food urticaria	Procaine combination A,* ½ to 1 tablet every three to four hours	Relief in 18 hours; no recurrence	None
5	M	32	Intermittent urticaria of unknown cause	Procaine hydrochloride, 300 mg. every three hours	No relief from diphenhydramine and epinephrine; relief in 18 hours after procaine therapy was started; no recurrence	None
6	F	22	Tetanus antitoxin reaction	Procaine-ascorbic acid combination,† 1 to 2 tablets every four to six hours	No relief from tripelennamine; dramatic relief after second dose of procaine-ascorbic acid; cure in 24 hours; no recurrence	None
7	F	22	Contact dermatitis	Procaine-ascorbic acid combination,† 1 tablet four times daily; calamine lotion	Complete relief in 48 hours; no recurrence	None
8	F	55	Penicillin reaction	Procaine-ascorbic acid combination,† 2 tablets every three hours for three doses; 1 tablet every four hours, as required	Subsidence of pruritus in 18 hours; at end of 72 hours almost complete healing; no recurrence	None
9	F	52	Atopic dermatitis	Procaine-ascorbic acid combination,† 1 tablet every four hours	No relief from previous large doses of ascorbic acid, diphenhydramine or tripelennamine; marked exacerbation of symptoms after fourth dose of procaine-ascorbic acid combination; therapy discontinued	Symptoms made worse
10	M	32	Dermatitis	Procaine-ascorbic acid combination,† 3 tablets every four hours	Pruritus and edema relieved in 24 hours; complete clearing in four days	None

* Procaine combination A consisted of procaine hydrochloride, 250 mg.; ephedrine, 10 mg., and methapyrilene, 15 mg.
† The procaine-ascorbic acid combination consisted of procaine hydrochloride, 250 mg., and ascorbic acid, 150 mg.

Side effects due to the orally administered procaine-ascorbic acid combination were absent in this trial, even though doses of as much as 2,400 mg. of procaine hydrochloride were given daily. Larger doses are now being tried experimentally. The oral toxicity of procaine is probably quite low, preliminary reports indicating that certain animals can tolerate as much as 5 Gm. per Kg. without demonstrable ill effects. Although various drugs were tried in combination with procaine, a product containing 250 mg. of procaine hydrochloride and 150 mg. of ascorbic acid per tablet is now being used because better results seem to have been obtained with it. This observation is in agreement with the findings of Graubard and co-workers, who employed ascorbic acid prior to the intravenous use of procaine. Further work is in process.

Oral administration of procaine seems to constitute a completely new approach to the problem of providing relief in certain cases of allergy. The mechanism of action is as yet unknown. It has been speculated that a breakdown product of the digestion of procaine may be responsible for the benefits observed. Further study of this problem is contemplated.

Consideration has been given to the possibility that the ascorbic acid was the primary factor responsible for the remarkable therapeutic effects which have been observed. Although it probably has contributory value, it is

doubtful that ascorbic acid exerts the main therapeutic effect, since it has been demonstrated on numerous occasions in the past that when it is orally administered comparatively huge doses (several grams) are necessary for relief of allergic symptoms. Furthermore, these results may be inconsistent, and only when ascorbic acid is given intravenously in 0.5-1.0 Gm. doses repeated several times daily can fairly reproducible results be obtained. (A.M.A. Arch. Dermat. & Syph., July '51, H. Luddecke)

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Effectiveness of a New Compound, Benemid, in Elevating Serum Penicillin Concentrations

The rapid renal clearance of penicillin has made it difficult to maintain blood levels adequate to combat resistant organisms such as enterococci and many staphylococci. Diodrast, p-amino-hippurate (PAH), benzoic acid, sodium benzoate and carinamide have been found to block renal tubular excretion of penicillin with enhancement of blood levels. Of these compounds, only carinamide has had widespread clinical use. Its value has been limited because the large doses required make it unwieldy and often poorly tolerated. This disadvantage appears to have been overcome by the recent discovery of a new compound, Benemid (p-(di-n-propylsulfamyl)-benzoic acid), which is apparently effective in low doses, and in preliminary studies has been found to have little toxicity. This report is based on measurements of penicillin blood levels in 74 patients treated with intramuscular penicillin G or its procaine salt.

The data clearly indicate that the oral administration of Benemid causes a significant elevation of serum penicillin levels. In the 139 instances in which a comparison was made, penicillin levels were 3.39 times higher after Benemid. This is comparable to the elevation obtained with carinamide, and is accomplished with a much smaller dose. The lower dosage requirement is probably largely responsible for the greater tolerance of Benemid, and will undoubtedly lead to a much wider general acceptance.

It should be noted that penicillin concentrations were not invariably higher after Benemid administration; with procaine penicillin (300,000 units) injected once daily, an elevation occurred in only 68 percent of the instances. When procaine penicillin was administered twice daily, elevations occurred in 92 percent, and with aqueous penicillin administered every 3 hours, enhancement was recorded in 95 percent of cases. The marked variability in absorption of penicillin, especially the procaine salt, undoubtedly accounts for these results, and it is not surprising that the greatest inconsistencies occurred when penicillin was injected only once daily.

In the present report, the enhancement of penicillin levels has been expressed mathematically in two ways, as the average of the individual fold increases, and as the fold increase of the average levels. Disparities between

these 2 figures occurred in all major groups studied, and are a reflection of the marked variability of penicillin levels obtained in different patients. In any one patient, the results are usually fairly constant from day to day, but even under these circumstances, there is enough variability in absorption to produce marked discrepancies. This point is emphasized because it is not universally realized that there is a great variability in penicillin levels from patient to patient.

The administration of Benemid will probably contribute little to penicillin therapy in the majority of infections caused by penicillin sensitive organisms. However, there are certain conditions in which it may prove of great value in bringing about a favorable response, and in reducing the cost of treatment. Subacute bacterial endocarditis, especially when caused by penicillin resistant organisms such as enterococci, is one of the diseases in which a great deal may be accomplished by Benemid administration. Large amounts of penicillin are required to maintain levels as high as 20 units per cc. With Benemid, such levels may be elevated to 40 or 80 units/cc. without increasing the dosage of penicillin. In some cases this will undoubtedly bring about effective therapy, and will at the same time minimize the mechanical and economic problems of massive penicillin therapy. Infections with other penicillin resistant organisms, such as staphylococci and certain of the gram negative bacilli, also fall into this category. In the patients who received Benemid in addition to 1,000,000 units of crystalline penicillin every 2 hours, the blood levels were never lower than 40 units/cc. Concentrations of this magnitude should be effective in the therapy of certain infections which are not ordinarily considered susceptible to penicillin.

The results obtained in 4 patients with meningitis were of special interest. Spinal fluid penicillin concentrations were elevated 10 to 40 fold in patients treated by the intramuscular route alone. The clinical response in these patients was striking, especially in a 43-year old woman who was seriously ill with staphylococcal meningitis. Benemid given in conjunction with large intramuscular doses of penicillin would appear highly efficacious in treating meningitis due to gram positive bacteria.

Benemid may find an important place in conjunction with oral penicillin therapy. The effectiveness of Benemid in prolonging therapeutic concentrations of penicillin should make it possible to achieve results with smaller doses, or with administration at greater intervals. (J. Clin. Investigation, July '51, J. M Burnell & W. M. M. Kirby)

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Sublingual Administration of Heparin

There is general agreement on the advantages of heparin as an anticoagulant. However, the methods of administration used to date have the disadvantages of (1) pain on intramuscular injection, (2) the frequency of injection and (3) the necessity of sterilization. Accordingly, the sublingual route was tried and found effective.

Sublingual wafers containing 125 mg. of sodium heparin were prepared. The Lee-White 3 tube technic was used for the determination of coagulation time. The pellet of heparin was then placed in the sublingual pouch, where it rapidly disintegrated. Absorption was usually complete in 10 minutes. The coagulation time was determined prior to the administration and at 1/2, 1, 2, 3, 4, 6 and 7 hours after the administration of the pellet. A therapeutic level is obtained within 1/2 hour and maintained for 4 hours.

This method makes available a practical means for the easy administration of heparin. In addition, there is no known toxicity for this substance and overdosage is not a problem because of the short duration of the anticoagulant effect.

The importance of such a drug in the treatment of frostbite is indicated by the work of Lange and others. The value of initiating such treatment in the field before the hospitalization of a frostbitten soldier is obvious. Because of its rapid effect and ease of administration, the sublingual route may well become the method of choice for the early anticoagulant treatment of myocardial infarction, pulmonary embolism and thrombophlebitis, and in vascular surgery. Further study is indicated to properly assess its place in the anticoagulant armamentarium for the treatment of thromboembolic diseases. (Proc. Soc. Exper. Biol. & Med., June '51, J. Litwins, J. J. Vorzimer, L. N. Sussman, N. Applezweig & A. D. Etess)

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Tuberculosis of the Urinary Tract

Tuberculosis of the urinary tract is a chronic, devastating disease of hematogenous origin. Simple eradication of the diseased focus by previous measures in the past has failed, and chemotherapeutics at present offer a greater relative possibility of cure than has heretofore existed. This can be accomplished more readily by attacking the bacillus with the esters of chaulmoogra oil or moogrol and preparing them for the final lethal action of streptomycin, or sulfone and/or para-aminosalicylic acid or a combination of these, than by use of the individual component. In vitro and in vivo studies substantiate the results obtained clinically; that the rapid and (to date) permanent negative reaction of the urine can be better obtained by synergistic therapy than by use of the individual antibiotic; and that the clinical response is highly satisfactory - more highly satisfactory than results obtained by prolonged sanitary or hygienic measures with their accompanying economic disadvantages.

These results have been substantiated by others. Sullivan recently pointed out that it is not a substitute for surgery. An operation was performed in 4 of his cases after the course of treatment had been completed. McLean, Smith, Bauer and Smith, reporting on 10 cases, have agreed in principle in the treatment administered and said that while it is helpful in tuberculosis of the prostate and vesiculitis, in contracted bladders from tuberculosis with negative urines no improvement was noted in the symptoms. This may occur because of the extreme fibrosis that takes place in the bladder during the healing process and also the shrinkage in capacity. In the treatment of the bilateral condition, in preparation for operation and in subsequent healing, they found the treatment of great value.

Unless the patient is extremely ill he is treated as an ambulatory patient. Two cc. of esters of hydnocarpus oil (or moogrol) is injected intramuscularly once daily for 7 days. This is to prepare the bacillus for the follow-up treatment of 0.5 Gm. streptomycin daily, either in a single dose or divided and administered twice a day. The dose of moogrol is then increased on the 8th day to 3 cc., and the streptomycin is instituted on the 8th day. The sulfone, diasone, 1 Gm. daily, appears to synergize the action of the streptomycin and the oil additionally, and is administered orally but this preparation is not without its hazards, as marked secondary anemia may occur and must be supervised by periodic blood examinations. Para-aminosalicylic acid is a valuable adjunct to the therapy, but it has the disadvantage that it creates gastric and enteric distress. If tolerated, it is preferable to the use of diasone; either, however, is a good choice. If it is elected to employ para-aminosalicylic acid with the afore-described treatment, it is administered orally in doses of 20 to 50 Gm. per day.

Finally, the attack consists of (a) preparing or softening the bacillus for the bacteriocidal effect of streptomycin, not bacteriostatic, employing the oil, (b) enhancing receptiveness to the antibiotic by employing either diasone or para-aminosalicylic acid and (c) using streptomycin for the coup de grace.

Reports of over 103 cases, both personal and reported by communication, disclose that this three-pronged attack is at present the best method of approach. Surgical intervention is indicated only if the organism involved is beyond its functional viability, and repair should be supplemented with the chemotherapeutic approach. (J. Internat. Coll. Surgeons, June '51, G. E. Slotkin)

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The Management of Massive Tuberculous Pneumonia

Massive tuberculous pneumonia is a serious condition, and prior to the use of streptomycin was generally considered to be a fatal disease. During the early days of the patient's illness tuberculous pneumonia is usually difficult to distinguish from other forms of bacterial pneumonia, and suspicion concerning its true nature may first be aroused by failure of the illness to

subside despite therapy with penicillin or certain other antimicrobial drugs. Tissue destruction occurs early in tuberculous pneumonia, and large cavities often form, sometimes involving an entire lobe. Death may occur before this takes place, but usually the patient lives on for several months, continuing ill until death.

Treatment with streptomycin has usually been found effective in quickly reducing the toxicity and promoting clearing of the disease, as may seen in the chest roentgenogram. It has been the general experience, however, that pulmonary cavities usually persist despite antimicrobial therapy, and the early addition of some form of collapse therapy is proved necessary for final attainment of a satisfactory result.

In the present study of the treatment of massive tuberculous pneumonia, pneumoperitoneum was chosen as the particular form of collapse to be used in conjunction with the antimicrobial therapy. The choice of pneumoperitoneum was made because of its relative safety and in order to avoid the serious complications of spontaneous collapse, empyema and unexpandable lung, which sometimes occur with artificial pneumothorax. Moreover, pneumoperitoneum could be applied to patients who were quite ill; it had been found to be of value in the treatment of tuberculous pneumonia prior to the streptomycin era, and it can easily be discontinued, does not prevent the later use of other collapse procedures and may often be combined with them to good advantage.

This report is concerned with 75 patients with massive tuberculous pneumonia who were treated with streptomycin; 56 also received pneumoperitoneum. The patients in the series were part of a large study of the effects of streptomycin on tuberculosis instituted by the Veterans Administration, the Army and the Navy. They were followed for from 6 months to 3 years after cessation of antimicrobial therapy.

The criteria employed for the diagnosis of massive tuberculous pneumonia consisted of: (1) the presence of large confluent dense shadows in the chest roentgenogram, involving one (but usually more than one) lobe of the lung; (2) high elevation of temperature and severe toxicity; (3) physical signs indicative of the presence of consolidation in most cases and (4) tubercle bacilli in the sputum. As a rule, it was possible to determine by earlier films that the pneumonic component was, at most, of only a few weeks' duration. In a few cases this could be determined only by the history.

The use of pneumoperitoneum and the timing of its introduction were influenced by several factors. In the early part of the study it was agreed that collapse therapy should be withheld to permit the evaluation of the effects of streptomycin alone. For this reason pneumoperitoneum was withheld in 16 patients. Pneumoperitoneum was refused by 3 additional patients. It was already in effect in 9 patients before the advent of the tuberculous pneumonia. In the remainder of those who received pneumoperitoneum, the time of induction was determined by trial and error in the first few patients treated. It was soon evident, however, that the occasional development of increased consolidation occurred when pneumoperitoneum and streptomycin were started

simultaneously. Further observation revealed that this consolidation could be avoided by delaying the induction of pneumoperitoneum for 6 to 8 weeks, as defervescence of symptoms, a halting of the onward progress of the lesion, and the onset of roentgenographic clearing generally occurred within that time.

When the whole course of the disease was considered, it was found that the patients who received pneumoperitoneum attained better ultimate results than those not receiving it; but this difference was not apparent at the end of the streptomycin treatment. For this reason, the cases were not separated in accordance with the presence or absence of collapse therapy at that time.

At the end of streptomycin therapy a gratifying proportion (36 percent) of the patients achieved marked improvement, with complete or almost complete clearing of the shadows observed in the roentgenograms, and an essentially equal proportion (35 percent) achieved at least moderate roentgenographic clearing. Unfavorable progression of any degree occurred in only 5 percent of the group. Such a low incidence of progression in so serious a condition as massive tuberculous pneumonia is evidence that a profound effect was exerted on the course of the disease.

The "conversion" of the sputum in only 21 percent of the cases at the end of streptomycin therapy was not too satisfactory, since the total period of therapy in most instances was only slightly longer than the period necessary to attain the designation "conversion," i.e., absence of tubercle bacilli for 3 or more months.

The course of the disease after the brief period of antimicrobial effect had passed was of more importance in evaluating the real effectiveness of treatment, and it was in this period that the usefulness of pneumoperitoneum began to appear. In maintenance of continued roentgenographic improvement the advantage of pneumoperitoneum appeared definite, since approximately 4 of 5 patients with pneumoperitoneum achieved this state, whereas only slightly more than one-half did so without pneumoperitoneum. While no difference was seen in the proportion of patients achieving sputum negative for tubercle bacilli in the first 6 months, the evidence in favor of pneumoperitoneum increased with time, becoming apparent 12 to 18 months after the start of therapy. By this time approximately three-fourths of the patients with pneumoperitoneum had "converted" their sputum, and only slightly more than one-half had done so without collapse therapy.

The addition of thoracoplasty following pneumoperitoneum did not increase incidence of sputum "conversion" in the 7 cases in which this was tried. Five of the patients who received no collapse therapy received phrenemphraxis; 3 of these refused the addition of pneumoperitoneum. One patient received a thoracoplasty in the 7 to 12 month period following bed rest and streptomycin, and one other underwent a pulmonary resection in the 13 to 18 month period. Both of these attained roentgenographic improvement and sputum negative for tubercle bacilli.

It was surprising that only 2 of the patients, both of whom had left the hospital against medical advice, were readmitted later and both had improved

in the meantime. Moreover, it was encouraging to note that none of the 14 patients discharged with a classification of "arrested" had been readmitted and, in so far as it is known, none had relapsed. A total of 14 patients had died by the time of this report, and all deaths were due to tuberculosis. Ten deaths occurred among the 45 Negro males (22 percent) and 4 among 27 white males (15 percent). On the other hand, 6 (22 percent) of the white males and 8 (18 percent) of the Negro males had attained an arrest of their disease. While the number of patients was small, the results tend to support the clinical impression that the prognosis of this condition is less favorable in Negroes.

When the clinical experience with massive tuberculous pneumonia in the pre-streptomycin era is compared with the observations in streptomycin-treated patients such as those in the present series, it may be categorically stated that streptomycin is essential in the management of this condition. Moreover, because of the rapidly progressive nature of the disease, chemotherapy should be started as soon as possible.

Experience with additional patients treated more recently and not included in the present series has revealed that combined therapy, using streptomycin and para-aminosalicylic acid, may well be more effective than streptomycin alone, since this combination has been found to delay the emergence of streptomycin-resistant organisms. It is also thought, at present, that almost all cases should receive at least 4 months' treatment and that moderately severe cases should have the combined therapy continued for 8 to 12 months if the maximal expected clearing of roentgenographic shadows has not occurred. It is believed from the observations reported that pneumoperitoneum should be used in all cases when feasible and it should be instituted within 6 to 8 weeks after beginning antimicrobial therapy. In this way, the collapse therapy is not started until some regression of toxicity and roentgenographic improvement has occurred, and the increased consolidation sometimes seen when pneumoperitoneum and streptomycin are begun simultaneously may be avoided.

It is believed that the addition of phrenemphraxis is rarely, if ever, indicated in the early weeks of treatment. It may be added later after the pneumoperitoneum has been instituted, and it has proved particularly useful in cases of unilateral disease when the expected clearing of the lesion and disappearance of cavity have not been attained. In the present series, phrenemphraxis was added to the pneumoperitoneum in 11 patients at some time during their course of streptomycin therapy.

It is not intended to give the impression that pneumoperitoneum is the only form of collapse therapy needed in the over-all treatment of massive tuberculous pneumonia, since it is evident that several patients were subjected to thoracoplasty following its use. It is believed, however, that pneumoperitoneum aided these patients to reach a state in which an additional measure could be applied, and it is also evident that pneumoperitoneum alone served as a definitive form of collapse for many others. (Am. Rev. Tuberc., July '51, W. S. Schwartz & R. E. Moyer)

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Physical Therapeutic Measures in Hemiplegia

The management of a patient with hemiplegia is a difficult problem, since many of the basic factors are not understood. In general, the purpose of such a program is the prevention and correction of deformities, increase of muscle function and the instruction of the patient in performing the activities essential to daily living. It has been demonstrated by Dinken that there are 22 basic activities regarding locomotion and traveling, 8 having to do with dressing, 7 in toilet activities, 8 concerned with eating, and 15 associated with hand function.

There is no set rule as to when the necessary physical measures should be initiated. It is important in cardiovascular accidents to attempt the differentiation of etiology, as there is a definite relationship in respect to early treatment. As a general rule, in those patients having a diagnosis of thrombosis or embolism, the indicated physical measures may be started immediately. In patients with a diagnosis of hemorrhage, little if any treatment should be started until the spinal fluid is clear or at least until the signs of meningeal irritation have practically subsided. Obviously, in some cases in which deformity seems to be developing, cautious passive exercises are indicated.

Usually the prognosis for functional recovery is best in patients who have had thrombosis and poorest in patients having experienced hemorrhage and emboli. Prolonged flaccidity is a poor prognostic sign and any muscle that remains completely paralyzed after a period of 3 months is not likely to return to the point of satisfactory functional value. However, there are exceptions in these cases also. The greatest over-all return of function undoubtedly takes place in the 6 months subsequent to onset; thereafter one can only try to improve the remaining function. Lengthy programs of treatment are not indicated, even though the relatives insist on continued therapy.

The initial step for any patient is a specific program of passive exercises, and only in patients critically afflicted should this be deferred. Each part of the involved extremity should be subjected to a full range of motion several times, and at intervals of 2 to 3 times daily. Special attention should be given to the shoulder, and it is most important that such exercises be taken with the shoulder girdle immobilized as well as freely movable. If there is any indication of periarthritis of the shoulder or shoulder-hand syndrome, stellate blocks should be given once daily, prior to the indicated exercises, except in instances in which such procedure is contraindicated because of hemorrhage. Pulley exercises are of great value when the patient is able to cooperate. In such cases relaxation becomes more spontaneous as the patient controls the stretching and, with the fear of being hurt thus minimized, will do a better job than with assistance. Such exercises also give an opportunity for reciprocal motion which is important in later functional activities.

When active motion starts to return, a program of careful assistive active exercises is instituted with the therapist guiding the extremity through a full range of motion. This is of the utmost importance in gaining coordination, and in the early treatment to prevent substitution and bizarre motions. During this phase the therapist is essential in the development of satisfactory patterns; these

may assure later independence in the efficient use of a weak muscle rather than encouraging reliance on strength alone. Free active exercises should be employed when a patient is able to move the part through a full range of motion in the horizontal plane. Resistive exercises to strengthen muscles are usually initiated after coordination has been established, and the member can be moved through a full range of motion against gravity.

Heat, massage and electrical stimulation have little over-all value in the hemiplegic patient. When there is sufficient active motion of the upper extremity, occupational therapy, stressing functional activities, should be started. Balance training should be begun as early as the condition of the patient permits. The patient should at first be supported by pillows in bed, then elevated to a sitting position. Next, the feet should be allowed to descend gradually over the side of the bed, until finally a standing position is attained.

Ambulation is essentially of great concern to both patient and family. When the motor power is severely restricted it is most important that one may speak and make one's wants known--a fact too often overlooked. The ability to use the hands and arms in order to insure independence regarding daily needs is more important than walking, since there are many ways and means of getting about if necessary. Although no set rule can be established, the general procedure is initiated by standing at the side of the bed after the patient has experienced sufficient return of power in the hip flexors and knee extensors to be able to lift the leg 1 to 2 inches off the bed. Usually a patient who can stand will eventually walk. A heel-toe gait is taught in order to overcome the effects of any residual ankle clonus. Crutches and canes are of value and should be used in establishing balance and for assistance in stepping. Practice walking in parallel bars is advocated. Occasionally elevation of the normal foot by a plank, 1/4 to 1 inch, is advised to allow clearance of the involved foot; this inhibits extensor spasm of the involved leg and may prove a worth-while supplementary aid. Later a lift on the shoe may have to be utilized.

Appliances have an important place in the over-all treatment program. Approximately 50 percent of patients will need a leg brace. Most patients will require a short caliper with 90 degree ankle stop to control the drop foot and ankle clonus, plus an outside "T" strap placed well forward on the sole and cut back on an angle so as to control the inversion of the forefoot. This gives the patient a firm base upon which to stand and walk. A few patients with especially weak quadriceps will need long leg braces; these patients must be studied carefully as they often have concomitant involvements such as disturbance of balance, vision and hands, which prohibit the effective use of a brace.

Splints are often needed for the fingers and wrist as flexor power usually returns first. Often the extensors are so over-stretched they never have the opportunity of regaining their normal resting length or functioning to any degree of efficiency when active return is limited. (Cleveland Clin. Quart., July '51, S. G. Gamble & W. J. Zeiter)

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Premarital Blood Tests

It is called to the attention of all hands that when blood tests are done on members of the Armed Forces for the purpose of securing a marriage license, the results should be submitted on the local forms of the state in which the marriage is to take place. (Office of the Secretary of Defense)

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Malaria Acquired in the Korean Theater

Five cases of proven vivax malaria in personnel having returned from Korea were admitted to the infirmary, U. S. Marine Corps Air Station, El Toro (Santa Ana), California, between 14 May and 13 June 1951. All cases had been back in the continental United States at least 2 months before the appearance of symptoms. Only 2 patients reported that they had taken the preventative medicines for malaria, and that in August, 1950. One patient returned to the United States from Korea in October, 1950, probably indicating that he had been infected with the parasite during the summer campaign of 1950. Two patients were admitted with the provisional mis-diagnoses of influenza and lobar pneumonia.

In addition to these 5 cases in the Navy are 7 proved and 2 probable cases of malaria reported by Dr. A. L. Gray occurring in Mississippi since 24 May in military personnel who had served in Korea. Six Plasmodium vivax infections and 1 Plasmodium malariae were confirmed by laboratory examination. Two cases in which laboratory confirmation was not obtained had received treatment a short time before blood smears were taken. Six of the cases had had suppressive treatment while in the military service in Korea, and 1 had a suggestive history of malaria prior to military service.

The probable long incubation period for vivax malarias is of special interest; thus malaria should be watched for carefully in patients returning from the Korean Theater of Operations. (CDR W. M. Snowden, MC, USN, U. S. Marine Corps Station, El Toro (Santa Ana), Calif., & FSA, PHS, National Office of Vital Statistics, PIO news release, 19 July '51)

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Selected Research Report

The Comparison of Several Methods of Penicillin Administration in the Treatment of Acute Respiratory Infections: Navy recruits admitted to an infirmary with an acute respiratory disease were treated with penicillin by intramuscular, inhalation and oral routes. In patients with beta hemolytic streptococcic infections of the nasopharynx, penicillin was effective in reducing the number of febrile days, the duration of hospitalization and the incidence of

positive nose and/or throat cultures for streptococci following treatment. Penicillin G dust by inhalation was the most effective and oral penicillin gave results approximating those obtained with intramuscular penicillin.

Generally, none of the dosage schedules employed can be considered satisfactory because of the relatively large numbers of men who were returned to their environment with positive nose and/or throat cultures for streptococci following treatment. Such carriers may provide source cases for further spread of streptococcal infections.

There was no apparent benefit from penicillin in cases of acute undifferentiated respiratory disease in which the nose and throat cultures were negative for beta hemolytic streptococci. Penicillin sensitivity reactions were not encountered. (Project NM 005 051.10.01, NMRU No. 4, AdCom., USNTC, Great Lakes, Ill.)

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Duty With the Atomic Bomb Casualty Commission

The Atomic Bomb Casualty Commission sponsored by the National Academy of Sciences and the Atomic Energy Commission conducts two clinical laboratories at Hiroshima and at Nagasaki. The program is carried on in the field by approximately 100 physicians and 900 supporting personnel. Six of the 19 American physicians in residence are certified by their Specialty Boards. Elective courses in biometrics and radiobiology are available to the resident staff. Laboratory equipment is highly adequate. Working and living conditions are desirable. A knowledge of the Japanese language is advantageous but not mandatory.

Applications for duty with the ABCC are desired as soon as possible from interested officers in the ranks of Lieutenant Junior Grade or Lieutenant, MC, USN, and should be addressed via official channels to the Chief of the Bureau of Medicine and Surgery. (Personnel Div., BuMed)

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List of Recent Reports Issued by Naval Medical Research Activities

Naval Medical Research Unit No. 3, Cairo, Egypt

A Morphological and Biological Study of Culex pipiens in the Cairo Area of Egypt (Diptera, Culcidae), Project NM 005 050.30.02, 6 June 1951.

House Flies in Egypt, Project NM 005 050.25.01, 20 June 1951.

A Simple Wet Fixed Staining Technique for the Immediate Diagnosis of Both Cysts and Trophozoites of Intestinal Protozoa, Project NM 005 050.01.01, 27 June 1951.

From the Note Book

1. A special safety pamphlet covering the following subjects: (1) Safety in Handling Compressed Medical Gases; (2) Safety in the Operating Room; (3) Safety in Resuscitation; (4) Safety in Oxygen Therapy and (5) Safety in Sterilization has been issued by "Surgical Equipment" of July 1951. (Ohio Chemical and Surgical Equipment Company, Madison, Wisconsin)

2. "Fatigue in Air Crew; Observations in the Berlin Airlift" is discussed in The Lancet, 7 July 1951, by Air Commodore R. N. Stanbridge, RAF.

3. The U. S. Bureau of Entomology has discovered a new insecticidal chemical, scabrin, a component of the common weed, ox-eye, a cousin of the sunflower. Preliminary tests indicate the new chemical to be more effective in killing houseflies than pyrethrum. Furthermore, the weed can be easily cultivated and harvested by farmers. (The Merck Report, July '51)

4. A recent Veterans Administration Report shows nearly twice as many veterans in V. A. hospitals with non-service-connected disabilities as with service-connected disabilities. As of 31 May 1951, the total was 63,004 against 33,124 disabilities connected with service. (Washington News, J.A.M.A., 14 July '51)

5. Five top-ranking officials of the International Division of the Public Health Service will arrive in Bangkok shortly to make a firsthand study of the public health program of the Special Technical and Economic Missions in Southeast Asia established by the Economic Cooperation Administration. (FSA news release, 18 July '51)

6. A bibliography on sludged blood designed to cover all concepts of healthy, normal blood and vessel walls, as well as the concepts of intravascular agglutination and the resulting damage appears in Postgraduate Medicine, July 1951, M. H. Knisely.

7. A review of the literature for 1949 and 1950 in the field of nutrition, covering subjects particularly of interest to the clinician appears in A. M. A. Archives of Internal Medicine, July 1951. (G. A. Goldsmith and J. Gibbens)

8. 1949 reports of disease outbreaks traceable to water show an increase over 1948 of nearly 1,000 cases of water-borne infections. There were 25 water-borne outbreaks with 1,570 cases and 3 deaths. There were 15 outbreaks due to milk and milk products with 246 cases and no deaths. There were 367 outbreaks caused by other foods, with 11 deaths. Nine of the 25 water-borne outbreaks occurred in hotels, resorts, restaurants, summer camps or apartment houses. Three outbreaks in schools, hospitals and institutions accounted for 237 cases. Human failure coupled with defects in equipment, facilities, technics and materials pave the way for such outbreaks. (Editorial, Modern Sanitation, July '51)

9. The New York City Department of Health has reported an outbreak of food poisoning in which 58 persons became ill out of a total of 115 who were exposed to risk. All were employees in a general hospital. None appeared among the patients, nurses or physicians whose food was prepared in other kitchens than the one serving the employees. Preliminary investigation revealed that the probable cause was boiled ham which was not refrigerated after cooking and remained exposed in the kitchen for about 12 hours before serving. (FSA, PHS National Office of Vital Statistics. PIO release, 19 July '51)

10. "The Relation of Sex, Pregnancy and Menstruation to Susceptibility in Poliomyelitis" is discussed in New England Journal of Medicine, 12 July 1951 by L. Weinstein, L. Aycock and R. F. Feemster.

11. The use of antibiotics in the treatment of compound fractures is discussed in Military Surgeon, July 1951, by J. A. Key.

12. The effect of procaine amide on auricular arrhythmias is discussed in the American Heart Journal, July 1951, by A. I. Schaffer, S. Blumenfeld, E. Pitman and T. H. Dix. (Refer to Medical News Letter, volume 18, no. 2, page 6, and to "Procaine Amide in Cardiac Arrhythmias," J. A. M. A., 14 July 1951, H. Miller, M. H. Nathanson and G. C. Griffith)

13. Nearly 5,000 new or improved civilian airports in American territory are needed to meet the demands of aviation now and during the next 3 years. (CAA report, Science News Letter, 14 July '51)

14. A statistical analysis of 557 cases of artificial pneumothorax initiated in 1930-1939 and followed in 1949 is discussed under the headings: (1) The influence of clinical findings before induction and late results; (2) The fate of the contralateral lung; (3) The influence of features of management after induction on early and late results. (Am. Rev. Tuberc., July '51, R. S. Mitchell)

15. A comparison of penicillin, aureomycin, chloramphenicol and terramycin in 150 cases of pertussis appears in the Journal of Pediatrics, July 1951. (L. N. Hazen, G. G. Jackson, Chang Shih-Man, E. H. Place & M. Finland)

16. "Retroperitoneal Tumors in Infants" is discussed in A.M.A. Archives of Surgery, July 1951, by N. H. Snyder, Jr., C. A. Kruse, E. M. Greaney and L. Chaffin.

17. RADM C. S. Stephenson, MC, USN, Ret., has been named to receive the 1951 Gorgas Award of the Association of Military Surgeons for his work on tropical disease. (PIO, BuMed)

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JOINT LETTER

BUMED CIRCULAR LETTER 51-106 13 July 1951

From: Chief of Naval Personnel
Chief of Bureau of Medicine and Surgery
Commandant of the Marine Corps

To: Commanders, All Naval Training Centers
Commanding Officers, All Naval Hospitals, CLUSA
Commanding Officers, All Receiving Stations, CLUSA
Commanding Generals, U. S. Marine Corps Recruit Depots, Parris Island, S.C., and San Diego, Calif.
Commanding Officers, All Marine Corps Activities, CLUSA

Subj: Procedure for disposition of enlisted and inducted members having physical disabilities which were not incurred in, or aggravated by, a period of active Military Service

Ref: (a) BuPers-BuMed-MarCorps Joint Letter file BuPers Pers-66-JMS; BuMed-33-RAB over P3-1/P19-1 (BuMed C/L 50-41a); MarCorps DM-1577-ebg of 21 Apr 50

Encl: (1) Prescribed waiver form

1. Reference (a) is cancelled.

2. Commanders Naval Training Centers, Commanding Officers Receiving Stations CLUSA, and Commanding Officers U. S. Naval Hospitals CLUSA, are hereby authorized to discharge enlisted or inducted members of the Navy and of the Naval Reserve on active duty by reason of physical disability and Commanding Generals U. S. Marine Corps Recruit Depots Parris Island and San Diego, and Commanding Officers All Marine Corps Activities CLUSA, are hereby authorized to discharge enlisted or inducted members of the U. S. Marine Corps and of the U. S. Marine Corps Reserve on active duty by reason of physical disability, provided:

(a) The member has appeared before a Board of Medical Survey and such Board has expressed the opinion, (1) that the member does not meet the minimum standards for enlistment or induction as set forth in AR-40-115, (2) that the member is unfit for further Naval Service by reason of physical disability, and (3) that the physical disability was neither incurred in, nor aggravated by, a period of active Military Service.

(b) The convening authority of the Board of Medical Survey concurs in the above opinions of the Board.

(c) The member has been fully advised, by the convening authority of the Board of Medical Survey, of his right to demand a full and fair hearing by a Physical Evaluation Board prior to discharge.

(d) The member, after having been advised of his right to a full and fair hearing, states in writing in accordance with the form prescribed in enclosure (1) that he does not demand a full and fair hearing prior to discharge.

(e) There is no disciplinary action pending.

3. In order to avoid unnecessary hospitalization the Report of Medical Survey required by the preceding paragraph may be submitted by any activity authorized to convene a Board of Medical Survey in accordance with Chapter 18, Manual of the Medical Department 1950. Whenever practicable, and particularly when hospitalization is not required for treatment, all indicated special studies should be obtained on a consultation basis.

4. In the case of Naval Personnel, where the convening authority of the Board of Medical Survey is other than a Naval Addressee, the Report of Medical Survey, together with the executed waiver, will be forwarded for appropriate action to the nearest Naval Addressee authorized to effect discharges under this letter.

5. In the case of Marine Corps personnel, where the convening authority of the Board of Medical Survey is other than a Marine Corps Addressee, the Report of Medical Survey, together with the executed waiver, will be forwarded for appropriate action to the Marine Corps Activity upon whose rolls the individual is carried.

6. In all cases the discharging activity will forward the original and one copy of the Report of Medical Survey and two signed copies of the enclosure to the Chief of Naval Personnel ~~of~~ the Commandant of the Marine Corps (Code DMB) as appropriate, via the Chief of the Bureau of Medicine and Surgery with endorsements thereon showing the action taken by the addressee.

7. When discharge is effected pursuant to this authority there shall be entered on the reverse side of the discharge certificate, abreast the entry "Authority": (a) for Naval personnel, Article C-10305, BuPers Manual 1948, and this joint letter; (b) for Marine Corps personnel, paragraph 10268, Marine Corps Manual 1949, and this joint letter.

8. In the event the member demands a hearing before a Physical Evaluation Board, or if the convening authority of the Board of Medical Survey does not concur in all of the opinions of the Board required by paragraph 2(a) above, the original of the Report of Medical Survey shall be forwarded to a Physical Evaluation Board in lieu of a report by a Clinical Board, and a copy to the Chief

of the Bureau of Medicine and Surgery. This action shall be shown by endorsement on the Report of Medical Survey.

9. If an addressee is of the opinion that a member otherwise qualified for discharge in accordance with this authority should be discharged for reasons other than physical disability because of unsatisfactory record of service or unsuitability, appropriate action shall be taken in accordance with current directives.

L. T. DuBOSE
Chief of Naval Personnel

C. J. BROWN
Deputy Chief of Medicine and Surgery

C. B. CATES
Commandant
U. S. Marine Corps

Approved: 13 July 1951
JOHN F. FLOBERG
Assistant Secretary of the Navy for Air

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 51-107 16 July 1951

From: Chief, Bureau of Medicine and Surgery
To: All Stations (except Naval Hospitals) Having a MedDept Representative Aboard

Subj: Storeroom Values of Standard Medical and Dental Supplies and Equipment Available for Use, NavMed-1311; discontinuance of reporting on

Ref: (a) Article 23-36 MMD
(b) BuMed Cir Ltr 51-100

1. Reference (a) is in the process of cancelation and reporting by subject form is hereby discontinued.

2. The dollar value of supplies and equipment reported, in accordance with reference (b), as held in the emergency expansion reserve shall be indicated under "Remarks" on the "Statement of Receipts and Expenditures of Medical Department Property, NavMed-E", by the following statement:

"Included in the amount reported on line 13 is D$_____, M$_____, and line 36 is D$_____, M$_____ which represents the value of the emergency expansion reserves as reported to BuMed by items."

3. Any change in the amounts reported in this statement from quarter to quarter, except for changes in supplies due to average unit pricing, shall be supported by copies of documents authorizing the increases or decreases.

C. J. Brown
Acting

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 51-108 19 July 1951

From: Chief, Bureau of Medicine and Surgery
To: District Medical Officers and Commanding Officers, all naval hospitals

Subj: Length of patient stay

Ref: (a) SecDef memorandum to the Secretaries of the Army, Navy and Air Force of 3 Aug 1950

Encl: (1) Administrative Factors Affecting Length of Patient Stay in Naval Hospitals

1. Reference (a) directed that appropriate steps be taken "to effect the more efficient use of the capacities of our military hospitals and to reduce that part of the non-effective rate of the military departments which is due to days absent from duty because of illness or injury without in any manner reducing the high quality of medical care or depriving any patient of the professional treatment and hospitalization necessary to his recovery". As a part of this Bureau's efforts to comply with reference (a) a detailed analysis of administrative factors affecting length of patient stay in naval hospitals was initiated. Enclosure (1) is a report on this study. Many of the conclusions contained therein are listed below for the consideration of all naval hospitals. Page references after each conclusion refer to the appropriate discussion in enclosure (1).

a. Wherever practicable, specimens for the laboratory reports known to be required should be collected as a part of the admission procedure. (Page 3).

b. All appropriate steps should be taken by each naval hospital to maintain as high a degree of stability of staff personnel within the command as possible. (Page 4).

c. Sick calls should be first in the order of business for the day on each ward. (Page 5).

d. The attention of all ward medical officers should be called to the importance of keeping clinical records current and carefully editing all material submitted to the Record office for typing. (Page 6).

e. Modern dictating equipment can be used to excellent advantage if it is strategically located in the hospital. (Page 8).

f. In most instances, dictated material should be transcribed by personnel in the Record Office. (Page 8).

g. Delay on the part of the medical officer in requesting indicated consultations, laboratory examinations and X-rays and delay in receiving these reports can add days to the time required to reach a decision and institute action. (Page 9).

h. Failure to refer patients to the Dental Service as early in their hospitalization as possible frequently results in unnecessary hospital days As a general rule, patients never should be held in the hospital for dental treatment which can be obtained at their duty stations. (Page 10).

i. A prompt and accurate messenger service is invaluable in expediting administrative procedures in the hospital. (Page 10).

j. Record Office personnel should be trained to fill in on each other's jobs. (Page 11).

k. A civilian employee should be trained to serve as an office manager to supervise the day-to-day routine of the Record Office. (Page 11).

l. The Personnel and Records Officer should not be assigned so many collateral duties that he does not have the time to give his office and his job the constant attention that they require. (Page 11).

m. The Personnel and Records Officer should be delegated authority to sign many routine documents for the Commanding Officer "by direction." (Page 12).

n. Discharges of active duty personnel from naval hospitals should be effected five days a week. (Page 12).

o. A messenger should be assigned to the Record Office for the expeditious collection of signatures upon Health Records, clinical board reports and other documents. (Page 12).

p. The Commanding Officer of each naval hospital is responsible for monitoring the length of patient stay in his command. This responsibility can be

profitably delegated to the chiefs of the various clinical services for monitoring the length of stay of the patients on each service until they are recommended for appropriate disposition and to the Administrative Officer for monitoring the administrative procedures relative to the movement of patients from the hospital. (Page 19).

q. Delegation of responsibility for monitoring length of patient stay in the manner outlined above appears to be the most effective in those hospitals which are organized in accordance with the suggestion of the Manual of the Medical Department. (Page 20).

r. Every member of the staff of each naval hospital should be alert to the problem of length of patient stay and should endeavor to make sure that no delay in the movement of patients occurs in his day to day activities. This only can be achieved by very evident interest in the problem on the part of the command with frequent and forceful reemphasis of it. (Page 21).

2. In addition to the above, particular attention is directed to Sections IV and V of enclosure (1) concerning clinical board procedures and convalescent patients.

3. This Bureau will continue to direct active attention to the length of stay of patients in naval hospitals. Addressees are requested to take all appropriate steps to assist in this effort to reduce unnecessary hospital days to an absolute minimum.

C. J. Brown
Acting

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 51-109 20 July 1951

From: Chief, Bureau of Medicine and Surgery
To: Selected Distribution List

Subj: Scoring of aviation aptitude tests; decentralization of

Ref: (a) BuMed Circular Ltr No. 50-57 of 31 May 1950
(b) BuMed Circular Ltr No. 44-45 of 15 Mar 1944

1. The Chief of Naval Personnel has requested that the Bureau of Medicine and Surgery issue necessary instructions to prepare flight surgeons stationed at naval air reserve stations and naval air reserve training units to score the aviation aptitude tests locally. Reference (a) is amended as hereinafter specified,

such amendment to be effective when, but not before, the resumption of recruiting of naval aviation cadets is directed by the Bureau of Naval Personnel.

2. Kits of scoring keys and instructions for scoring have been prepared and are being distributed to appropriate addressees.

3. Scoring kits are serially numbered and recipients are directed to sign the accompanying receipt and return it to the Bureau of Medicine and Surgery without delay.

4. Stations other than those herein specified shall continue to forward test answer sheets to the Bureau of Medicine and Surgery for scoring, as specified in reference (a).

5. Cognizant flight surgeons at activities herein specified shall comply with the revised directions (when directed). Local scoring shall be initiated at these activities on the same date that they resume procurement of naval aviation cadets on orders from the Bureau of Naval Personnel. If tests are for any reason administered before resumption of procurement they shall be forwarded to the Bureau of Medicine and Surgery in accordance with instructions under reference (a).

C. J. Brown
Acting

The above letter will not be printed in the Navy Department Bulletin.

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